

A N
I D E A
OF THE
MATERIAL UNIVERSE,

Deduced from a SURVEY of the

SOLAR SYSTEM.

By JAMES FERGUSON.

—*He made the* WORLDS. Heb. i. 2.

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MATERIAL UNIVERSE

SYSTEM

BY JAMES REED

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A N
I D E A
O F T H E
M A T E R I A L U N I V E R S E .



F all the Sciences cultivated by Mankind, Astronomy is acknowledged to be, and undoubtedly is, the most sublime, the most interesting, and the most useful. It more effectually than all the rest, comes home to Men's Business and

Bosoms ; as Lord Bacon phrases it. For by Knowledge derived from Astronomy, not only the Bulk of the Earth is discovered, the Situation and Extent of the Kingdoms and Countries upon it ascertained, Trade and Commerce carried on to the remotest Parts of the World, and the various Products of several Countries distributed for the Health, Conveniency and Comfort of its Inhabitants ; but our very Faculties are enlarged with the Grandeur of the Ideas it conveys, our Minds exalted above the low and contracted Prejudices of the Vulgar, and our Understandings clearly convinced, and affected with the Conviction, of the Existence, Wisdom, Goodness, Power, and Superintendency of the SUPREME BEING : So that without an Hyperbole,

An undevout Astronomer is mad.

From this Branch of Knowledge, we also learn the Means or Laws, the Almighty makes use of to carry on, and continue, the admirable Harmony, Order, and Connexion observable throughout the material World :
And

And are led by very powerful Arguments to form the pleasing Deduction, that Minds capable of such deep Researches derive their Origin from Heaven, and are incited to aspire thither as to their proper and final Habitation.

By Astronomy we discover, that the Earth is at such a Distance from the Sun, that if seen from thence, it would appear no bigger than a Point, although its Circumference is 25,020 Miles: Yet that Distance is so small, compared with the Distance of the fixed Stars, that if the Orbit in which the Earth moves about the Sun was solid, and seen from the nearest Star, it would likewise appear no bigger than a Point, although it is known to be at least ⁴⁰⁶3564 Millions of Miles in Circumference. For, by the best Observations, the Parallax of the fixed Stars scarcely amounts to one Second; and a Telescope which magnifies above 200 times, does not sensibly magnify them; which proves them to be at least 400 thousand Times farther from us than the Sun: And this

is the Reason that neither their Magnitudes, Distances nor Positions are sensibly changed, although the Earth approaches 162 Millions of Miles nearer to some of them at one Time of the Year than another.

THE Reason why the Sun appears to us so much brighter and larger than the fixed Stars is, because we constantly keep near the Sun, and are at such an immense Distance from the Stars. For, a Spectator placed as near to any fixed Star as we are to the Sun, would see it a Body as large and bright as the Sun appears to us: And a Spectator as far distant from the Sun as we are from the Stars would see the Sun as small as a Star; and would reckon it one of the Stars in numbering them.

THE Stars, being at such an immense Distance from the Sun, cannot possibly receive from him so strong a Light as they appear to have; nor any Brightness sufficient to make them at all visible to us: And therefore, they must shine with their own native and unborrowed Lustre, as the Sun does. And being as big, and like it, each
confined

confined to one Portion of Space, they are, of consequence, of the same Nature with our Sun.

IT is not to be imagined that all these Stars are placed in one concave Surface, so as to be all equally distant from us ; but that they are scattered at vast Distances from one another through unlimited Space. So that there may be as great Distance betwixt any two of the nearer Stars as betwixt our Sun and them. Hence, a Spectator, who is nearest to any fixed Star, will only look upon it as a real Sun ; and consider the rest as so many shining Points fixed at equal Distances from him in the Firmament.

By the Help of Telescopes, we discover thousands of Stars which are invisible to the naked Eye : And the better our Glasses are, still the more become visible, so that we can set no Limits either to their Numbers or Distances. The celebrated *Huygenius* carries this Thought so far, as not to believe it impossible that there may be Stars at such inconceivable Distances, that their Light has not yet reached the Earth since

the Creation; notwithstanding the amazing Velocity of Light which flies a Million of Times swifter than a Cannon Bullet. And this Thought is far from being extravagant, when we consider, that the Universe is the Work of an infinite Power, prompted by infinite Goodness, having an infinite Space to exert itself in; so that our Imagination can set no Bounds to it.

It is no ways probable that the Almighty, who always acts with infinite Wisdom, and does nothing in vain, should create so many glorious Suns, fit for so many important Purposes, and set them at such vast Distances from one another, without any Object near enough to be benefited by their Influences. Whoever imagines that God created them only to give us a faint glimmering Light, must have a very mean Opinion of the Divine Wisdom: Since by an infinitely less Exertion of creating Power he could have given us much more Light by one single additional Moon.

INSTEAD then of one Sun and one World only in the Universe, as the unskilful

ful in Astronomy imagine, that Science discovers to us such an inconceivable Number of Suns, Systems, and Worlds, scattered through boundless Space, that if our Sun, with all the Planets, Moons, and Comets belonging to it, were annihilated, they would no more be missed out of the Universe than a Grain of Sand from the Sea Shore ; the Space they possess being comparatively so small, that it would scarce leave a sensible Blank in the Creation ; although the outermost of our Planets revolves about the Sun in an Orbit of ⁴⁶⁶²~~2,442~~ Millions of Miles in Circumference, and some of our Comets make Excursions upwards of 10,000 Millions of Miles beyond that Planet's Orbit.

FROM what we know of our own System, it may be reasonably concluded that all the rest are with equal Wisdom contrived, situated, and provided with Accommodations for rational Inhabitants. Let us therefore take a general Survey of the System to which we belong, the only one accessible to us, and from thence we shall be the better enabled to judge of the Nature
and

and End of the other Systems of the Universe : For although there is almost an infinite Variety in all the Parts of the Creation which we have Opportunities of examining, yet there is a general Resemblance and Analogy running through, and connecting each Part into one Scheme, one Design, one Whole.

THE Sun, together with the Planets, Satellites, and Comets, constitute the solar System. Those Planets which are nearer the Sun not only finish their Circuits sooner, but likewise move faster in their respective Orbits than those which are more remote. Their Motions are all round the Sun from West to East, in Curves nearly circular : Their Names, Distances, Bulks, and periodical Revolutions, are as follows :

THE SUN, that immense Globe of Fire, is placed near the common Center, or rather Focus, of the Orbits of all the Planets and Comets, turning round his Axis in 25 Days 6 Hours, as is evident by Spots seen on his Surface. His Circumference is 2 Million

398 Thousand Miles ; and by the various Attractions of the circumvolving Planets he is agitated by a small Motion round the Center of the System. As seen from him, all the Planets constantly move the same Way ; but from any one Planet, the rest appear sometimes to move forward, sometimes backward, and sometimes to stand still, not in Circles nor Ellipses, but in looped Curves which never return into themselves. The Comets, seen from any Part of the System, come from all Parts of the Heavens, and move in all Sorts of Directions.

MERCURY, the nearest Planet to the Sun, goes round him in 87 Days 23 Hours of our terrestrial Time, which is the Length of his Year ; but being rarely seen, and no Spots appearing on his Disc, the Time of his Rotation on his Axis, or Length of his Days and Nights, is to us unknown. His Distance from the Sun is 32 Millions of Miles, and his Circumference 13 Thousand 350. He moves 100 Thousand Miles in his Orbit every Hour ; his Light and Heat is seven Times as much as ours, and to him

him the Sun appears seven Times as large as to us.

VENUS, the next Planet in Order, is 59 Millions of Miles from the Sun, and travelling at the Rate of 70 Thousand Miles every Hour, finishes her annual Circuit in 224 of our Days and 17 Hours; in which Time she has only $9\frac{1}{4}$ Days. Her Axis inclines 75 Degrees from the Axis of her Orbit; on which Account, the Length of her Days and Nights differ much more in Proportion, and the Variation of her Seasons is greater, than those of our Earth. She very seldom has the Forenoon and Afternoon of the same Day equally long; and what is very remarkable, at the Equator, she has the four Seasons twice every Year, as sensibly distinguished as ours are at London. Her Equinoxes shift backward a Quarter of a Day, every Year. To her the Sun's Declination is about 30 Degrees at a mean State each Day, which will make the Longitude of her Places very easy to be found. She is our Morning and Evening Star by Turns, and her Light and Heat is almost double of ours.

THE EARTH, betwixt the Orbits of Venus and Mars, is 81 Millions of Miles from the Sun, and revolves round him in 1 Year, or 365 Days 5 Hours 49 Minutes, moving at the Rate of 58 Thousand Miles every Hour; which, though 120 Times swifter than the Motion of a Cannon Bullet, is little more than half the Swiftnefs of Mercury's Motion. The Earth's Circumference is 25 Thousand and 20 Miles; and it turns round its Axis from West to East in 24 Hours, which occasions an apparent diurnal Motion of all the heavenly Bodies from East to West in that Time. Its Axis inclines $23\frac{1}{2}$ Degrees from the Axis of its Orbit, which causes the Returns of Spring, Summer, Autumn, and Winter. Besides physical Arguments, which are abundantly satisfactory, the Earth's Rotation on its Axis is evident from its spheroidal Figure, which necessarily results from such a Motion. That it is really of this Figure is demonstrable, from the unequal Vibrations of a Pendulum, and the unequal Length of a Degree, in different Latitudes. Since then the Earth is higher at the Equator than at the Poles, the Sea, which naturally runs downward,

downward, or toward the Places which are least distant from the Center, would run toward the polar Regions and leave the equatorial Parts dry, if the centrifugal Force of the latter did not raise and carry the Water thither.

THE Seas and unknown Parts of the Earth contain 160,522,026 square Miles; the inhabited Parts 38,990,569; Europe 4,456,065; Asia 10,768,823; America 14,110,874: In all 199,512,595, which is the Number of square Miles on the whole Surface of our Globe.

THE MOON is the Earth's Satellite, her Circumference is 6,836 Miles, and at the Distance of 240,000 Miles from the Earth's Center, revolves round it from Change to Change in 29 Days 12 Hours 44 Minutes; turning round her Axis from the Sun to the Sun again exactly in that Time, which is the Reason of her keeping still the same Side towards the Earth, and that a Day and Night in her is as long as a lunar Month with us. She is an opaque Globe like the Earth, and shines only by the

the Light of the Sun ; therefore while that Hemisphere which is turned toward the Sun is enlightened, the other must be dark and invifible. There is fcarce any Variation of Seasons in the Moon ; and, what is very fingular, one Half of her has no Darknefs at all, the Earth constantly affording it a ftrong Light in the Sun's Abfence ; while the other half has a Fortnight Darknefs and a Fortnight Light by Turns. To her our Earth is a Moon, which grows and wanes regularly ; appearing 15 Times as big, and affording her 15 Times as much Light, as fhe does to us. When the Moon is new to us, the Earth is full to the Moon ; and *vice verfa*. From one Half of the Moon the Earth is never feen at all : from the Middle of the other Half it is always feen over Head : from other Parts, always in or near the Horizon ; and from the intermediate Parts, at proportional Altitudes with little Variation. As our Earth turns on its Axis, the feveral Continents, Seas and Iflands will appear like fo many Spots of different Forms and Brightnefs moving over its Surface ; and thereby become a very good Dial to the Lunarians for meafuring their Time.

A Pro-

A Problem extremely difficult to us may be easily solved by them, for the Longitude of Places in the Moon may as exactly and readily be found, by Means of our Earth, as the Latitude is with us.

SOMETIMES the Moon when she changes, comes so directly between the Sun and Earth as to hide or eclipse the Sun from our Sight, and sometimes she is so directly opposite to the Sun when full, as to go through the Earth's Shadow and be eclipsed herself. When the Sun is eclipsed to us, the Earth is eclipsed to the Moon's Inhabitants, but never total. And when the Moon is eclipsed to us, the Sun is eclipsed to them, often totally for three Hours together, though to us it never lasts above four Minutes. These Eclipses would happen at every new and full Moon, if the Moon's Orbit lay in the same Plane with the Earth's: But as one Half of the Moon's Orbit is above and the other Half below the Earth's, crossing it in two opposite Points, called the Moon's Nodes, there can be no Eclipses but when the new or full Moon happens in or near one of these Points. They move backward,
through

through all Parts of the Moon's Orbit in 18 Years and 225 Days; and always in 173 Days after the Sun is in Conjunction with either of the Nodes, he is in Conjunction with the other.

IN 18 Years 10 Days 7 Hours and 43 Minutes after the Sun, Moon and Nodes have been in Conjunction, they come to a Conjunction again. If the Conjunction you reckon from falls in a Leap Year, the Return of the Conjunction is a Day later: Therefore, if to the mean Time of any Eclipse of the Sun or Moon in a Leap Year, you add 18 Years, 11 Days, 7 Hours, 43 Minutes, or in a common Year a Day less, you will have the mean Time of that Eclipse returned again; though not always visible, because the 7 Hours 43 Minutes may shift a solar Eclipse into the Night, and a lunar Eclipse into the Day.

THE Planet MARS is next in Order, above the Earth's Orbit: his Distance from the Sun is 123 Millions of Miles; and, by travelling 45 Thousand Miles every Hour in his Orbit, goes round the Sun in 1 Year

322 Days 17 Hours, which is the Length of his Year. His Circumference is 13 Thousand 297 Miles; he turns round his Axis in 24 Hours 40 Minutes, which is the Length of his natural Day; and the Quantity of his Light and Heat is but equal to one half of ours. This Planet not exceeding one fourth Part of our Earth's Bulk, if any Moon attends it she must be very small, and has never yet been discovered by our best Telescopes. He appears sometimes gibbous, but never horned, which shews that his Orbit includes the Earth's within it, and that he shines not by any Light of his own. To him our Earth and Moon appear like two Moons, a bigger and a lesser, changing Places with respect to one another, and appearing sometimes horned, sometimes Half or three Quarters illuminated, but never full, nor at most above a Quarter of a Degree from each other, though 240 Thousand Miles distant. To such Eyes as ours, if unassisted by proper Instruments, Mercury can never be seen from Mars, except in passing over the Sun's Disk; but all the other Planets will be visible.

JUPITER,

JUPITER, the biggest of all the Planets, is still higher in the System, being 424 Millions of Miles from the Sun, and going at the Rate of 24 Thousand Miles every Hour, finishes his annual Period in eleven Years, 313 Days, 15 Hours. His Circumference is 254 Thousand 469 Miles, which makes him above 1000 Times bigger than the Earth. He revolves round his Axis in 9 Hours 56 Minutes, on which Account the diurnal Velocity of his equatorial Parts exceeds the Swiftneſs wherewith he moves in his Orbit; which is a ſingular Circumſtance ſo far as we know. The Axis of this Planet is ſo nearly perpendicular to its Orbit that he has no ſenſible Change of Seasons, which is an Advantage in Jupiter: For if his Axis inclined any conſiderable Number of Degrees, juſt ſo many Degrees round each Pole would be almoſt fix Years together in Darkneſs; and conſidering that each Degree there at a mean State contains ⁷⁰⁰~~5000~~ of our Miles, it is eaſy to judge what vaſt Tracts of Land would thereby be uninhabitable; more eſpecially as none of his Moons are ſeen from his polar Regions.

The small Quantity of Light and Heat he derives from the Sun, which is but $\frac{1}{28}$ Part of ours, is compensated by its quick Returns, and by four Moons, none of them less than our Earth, which revolve round him; so that there is seldom any Part of this huge Planet but what is enlightened by one or more of them, excepting near the Poles, where there is no Need of them; because the Sun constantly circulates in or near their Horizon without setting. The first, or nearest Moon to Jupiter goes round him in 1 Day, 18 Hours, 36 Minutes; the second in 3 Days, 13 Hours, 15 Minutes; the third in 7 Days, 3 Hours, 59 Minutes; and the fourth in 16 Days, 18 Hours, 30 Minutes. This Planet seen from its nearest Moon appears one thousand Times as large as our Moon does to us; taking up a sixth Part of the visible Heavens; growing and waneing in all the Shapes of our Moon every $36\frac{1}{2}$ Hours. By the Eclipses of these Moons, which happen in every Revolution round Jupiter, Astronomers have not only discovered that Light comes from the Sun to us in $7\frac{1}{2}$ minutes, but have also determined the Longitudes of Places on this Earth with greater

greater Certainty and Facility than by any other Method yet known.

SATURN, the remotest of all the Planets, is 777 Millions of Miles from the Sun; and by travelling at the Rate of 18 Thousand Miles every Hour, goes round the Sun in 29 Years, 167 Days, 10 Hours, which makes only one Year in that Planet. His Circumference is 191 Thousand 637 Miles. He is 600 Times as big as the Earth, and is surrounded by a broad thin Ring encompassing his Body as an Horizon does a Globe, and inclined 30 Degrees to his Orbit; its Breadth is 21 Thousand Miles, equal to its Distance from Saturn. To this Planet the Sun appears only $\frac{1}{90}$ th Part so big as to us, and the Light and Heat he receives from it is in the same Proportion to ours: But to compensate for that, he has five Moons going round him, all on the Outside of his Ring, and nearly in the same Plane with it. The Sun shines on one Side of the Ring during one Half of Saturn's Year, and on the other Side during the other Half: so that it will appear to his Inhabitants for almost 15 of our Years together, and disappear as long

by Turns, if his Axis is not inclined to the Plane of his Ring. But if it is inclined thereto, as is more likely, the Ring as well as the Moons will be seen every diurnal Revolution of Saturn. This Ring will appear like a vast luminous Arch, frequently eclipsing the Sun, twice in a Saturnian Day if the Axis be inclined to the Ring; but if it be not, the Shadow, which is prodigiously large all across the Body of the Planet, will hide the Sun from vast Tracts of it for several of our Years together, which is another presumptive Proof of the Inclination of its Axis. When we see the Ring most open, its Shadow on the Planet is broadest, and from that Time it grows narrower, until the Sun comes to the Plane of the Ring, which being then turned edge-wise to us, disappears on Account of its Thinness; and this happens twice in each Revolution of Saturn round the Sun. To such Eyes as ours, unless assisted by Instruments, neither Mars, the Earth, Venus, nor Mercury, can be seen either from Saturn or Jupiter. It has not yet been discovered in what Time Saturn turns round his Axis, and therefore the Length of his Days are to us unknown.

THE

THE Inhabitants about Venus's Equator are carried 43 Miles therewith, every Hour, by turning round her Axis ; those about our Earth's Equator 1042 Miles in the same Time ; those about Mars's 566 ; and those about Jupiter's 25,940 ; besides that of their hourly Velocities in their Orbits already mentioned.

THE Planets are retained in their Orbits by the duly balancing of their projectile Forces to the Power of the Sun's Attraction. If the projectile Force of each Planet was stopped, and the Sun should continue to attract it, Mercury would fall to the Sun in 15 Days 18 Hours, Venus in 39 Days 17 Hours, the Earth in 64 Days 10 Hours, Mars in 121 Days, Jupiter in 390, and Saturn in 767.

To assist the Imagination in conceiving the vast Distances of the Planets and Stars, let us suppose that a Body projected from the Sun should continue to fly with the Swiftneſs of a Cannon Bullet, i. e. 480 Miles every Hour ; this Body would reach the Orbit

of Mercury in 7 Years 221 Days, of Venus in 14 Years 8 Days, of the Earth in 19 Years 91 Days, of Mars in 29 Years 85 Days, of Jupiter in 100 Years 280 Days, of Saturn in 184 Years 240 Days, to the Comet of 1680 in its Aphelion in 2580 Years, and to the nearest fixed Stars in about 7 Million 600 Thousand Years.

As the Earth is not the Center of the Planet's Motions, they come nearer to it, and go further from it in some Parts of their Orbits than other ; on which Account their Disks or Surfaces appear bigger and lesser at different Times. Mercury appears $5\frac{1}{2}$ Times as big at his least Distance as at his greatest ; Venus 32 Times as big ; Mars 25 Times ; Jupiter a little more than twice as big ; and Saturn half as much bigger. Hence their apparent Bulks in the Heavens are not always a certain Rule to know them by.

THE COMETS are solid opaque Bodies, with long transparent Trains or Tails issuing from the Side which is turned from the Sun. They move about the Sun in very excentric Ellipses, and are of a much greater
Density

Density than our Earth ; for some of them in every Period are heated to such a Degree as would vitrify or dissipate any Substance known to us. It is thought there are at least 21 belonging to our System, but the Periods only of three are known with any Degree of Certainty. The first of these appeared in the Years 1531, 1607, and 1682, and is expected to appear again in 1758, and every 75th Year afterwards. The second of them in 1532 and 1661, and so may be expected to return in 1789 and every 129th year after. The third, having last appeared in 1680, and its Period being no less than 575 Years, cannot return until the Year 2255. This Comet, at its greatest Distance from the Sun, is 10 thousand 878 Millions of Miles beyond Saturn's Orbit ; and at its least Distance, which is 490,000 Miles, the Sun, as seen from it, appears 100 Degrees in Breadth, and consequently 40 Thousand Times as large as he does to us.

THE extreme Heat, the dense Atmosphere, the gross Vapours, the chaotic-like State of Comets, seem to indicate them
unfit

unfit for the Purposes of animal Life, and a most uncomfortable Habitation for rational Beings. Nevertheless, when we consider on the other Hand the infinite Power and Goodness of the Deity, the latter inclining, and the former enabling him to make Creatures suited to all States and Circumstances; that Matter exists only for the Sake of Intelligence, and wherever we find it, we find it always pregnant with Life, or necessarily subservient thereto; the numberless Species, the astonishing Diversity of Animals in Earth, Air, Water, and even on other Animals, every Blade of Grass, every tender Leaf, every natural Fluid, swarming with Life, which in some, as the Salamander, Fire itself does not soon extinguish; and each enjoying such Gratifications as their Nature and State require; when we reflect moreover, that some Centuries ago, 'till Experience undeceived us, a great Part of our Earth was judged uninhabitable; the torrid Zone by reason of excessive Heat, and the frigid Zones on account of excessive Cold: From these Considerations, it seems highly probable that such numerous and large

large Masses of durable Matter as the Comets, the most considerable Part of our System, however unlike they are to our Earth, are not destitute of Beings capable of contemplating with Wonder, and acknowledging with Gratitude, the Beauty, Wisdom, and Symmetry of the Creation ; which is more plainly to be observed in their extensive Tour through the Heavens, than in our more confined Circuit. If farther Conjecture is permitted, may not one suppose they are peopled with guilty Creatures reclaimable by Sufferings, as we are on the Earth ; and, like every thing else that falls under our Observation, may be subservient to other secondary Purposes ; such as recruiting the expended Fuel of the Sun ; supplying the exhausted Moisture of the Planets ; causing Deluges and Conflagrations for the Correction and Punishment of Vice ? However difficult it may be, circumstanced as we are, to find out their particular Destination, this is an undoubted Truth, that wherever the Deity exerts his Power, there he also manifests his Wisdom and Goodness,

By

By an attentive Consideration of this short Survey of the Solar System, we may learn that the Planets with their Attendants are much of the same Nature with our Earth, and destined for the same Purposes : For they are solid and opaque Globes, capable of supporting Animals and Vegetables. Some of them are greater, some less, and some much about the Size of the Earth. They all circulate round the Sun as the Earth does, in a shorter or longer Time, according to their Distances ; and have, where it would not be inconvenient, regular Returns of Summer and Winter, Spring and Autumn : They have warmer and colder Climates, as the various Productions of our Earth require : And in such as afford any Possibility of discovering it, we perceive a regular Rotation round their Axes, like that of the Earth, making Day and Night alternately, which is necessary for Labour, Rest, and Vegetation ; and exposes all Parts of their Surfaces to the Influence of the Sun's Rays. Such of the Planets as being furthest from the Sun enjoy least of his
Light

Light have that Deficiency compensated by several lesser Planets or Moons, which continually accompany and revolve round them as our Moon does round us. The remotest of them has over and above, a broad Ring encompassing him, which, like a lucid Zone in the Heavens, reflects the Sun's Light very copiously upon the Planet: So that if they have the Sun's Light fainter by Day than we, they have an Addition made to it Morning and Evening by one or more Moons, and a greater Light in the Night-time. On the Surface of the Moon, because it is nearer us than any other of the celestial Bodies, we discover a more minute and strong Resemblance of the Earth; for, by the Assistance of Telescopes, Seas and Lakes, Mountains, Valleys, and deep Cavities are observed in it. These Similarities leave no Room to doubt that not only our Moon, but all the other Planets and Moons in the System are of like Nature with our Earth, and designed as commodious Habitations for Creatures endowed with Capacities of knowing, obeying and adoring their beneficent Creator.

SINCE

SINCE the numberless fixed Stars are prodigious Spheres of Fire like our Sun, and at inconceivable Distances from one another, as well as from us, it is reasonable to conclude they are made for the same Purposes that the Sun is; each to bestow Light, Heat and Vegetation on a certain Number of inhabited Planets, kept by Gravitation within the Sphere of its Activity.

WHAT an august! what an amazing Conception, if human Imagination can conceive it, does this afford of the Works of the Creator! Thousands of Thousands of Suns, extending without End beyond one another, all round, and at immense Distances ranged in the most beautiful Order, accompanied with ten Thousand Times ten Thousand Worlds, self-ballanced, all in rapid Motion, yet calm and smooth, regular and harmonious, invariably keeping the Paths prescribed them; and these Worlds peopled with Myriads of intelligent Beings, all Candidates for Heaven, and capable of endless Progression in Perfection and Felicity!

IF so much Power, Wisdom, Goodness, and Magnificence is displayed in the material Part of the Creation, which may be but a small Part of the Universe, how great, how wise, how good, must HE be who made and guides the Whole!

F I N I S.



1814

On the 1st of January 1814
I received from Mr. [Name]
a letter of introduction to Mr. [Name]
of the [Name] [Name] [Name]
[Name] [Name] [Name] [Name] [Name]
[Name] [Name] [Name] [Name] [Name]

1814

1814